

**AUG 30 2007****IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

Appellant(s): Papallo et al.  
Serial No.: 10/662,945  
For: CIRCUIT PROTECTION SYSTEM  
Filed: September 15, 2003  
Examiner: Zoila E. Cabrera  
Art Unit: 2125  
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**Mail Stop Appeal Brief-Patents**  
**Commissioner for Patents**  
**P.O. Box 1450**  
**Alexandria, VA 22313-1450**

**SUPPLEMENT TO THE APPEAL BRIEF FILED UNDER 35 U.S.C. §134**

Dear Sir:

Further to the Notice of Non-Compliant Appeal Brief dated July 30, 2007 and in compliance with the requirements set forth in the Manual of Patent Examining Practice §1205.03 (B), Appellants submit herewith a paper providing a summary of the claimed subject matter as required by 37 CFR 41.37(c)(1)(v). This paper is supplemental to the Appeal Brief filed on June 27, 2007.

Appellants wish to thank Patent Appeal Center Specialist Timothy Cole for his time to discuss the Notice of Non-Compliant Appeal Brief's requirement to include separate headings for each ground of rejection. As discussed, the Appeal Brief submitted on June 27, 2007 included one ground of rejection to be appealed and one heading. Appellants submit, and Specialist Cole agreed, that no correction to the Appeal Brief is warranted at this time.

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**(v) Summary of claimed subject matter**

The claimed invention relates generally to methods for protecting circuits (claims 1 and 14), protection systems (claims 29 and 39) utilizing such methods, and power distribution systems (claims 51 and 62) utilizing such methods.

Advantageously, the claimed methods and systems provide dynamic zone protection. As a non-limiting example of adjusting a zone protective function for the zone, Appellants' specification describes:

In an exemplary embodiment, protection system 26, can perform dynamic zone protective functions for the zones of protection of power distribution system 105. The dynamic operation of system 26, and its capability of adjusting the zone protection functions, including, but not limited to, the algorithms and/or the coefficients associated with the algorithms, accounts for changes in the topology within the zone of protection, as well as throughout the entire circuit. See paragraph [0089].

As a further non-limiting example, Appellants' specification describes application of the claimed methodology and the claimed systems with use of bus differential as the zone protective function based upon a change to the zone of protection as shown in FIGS. 9 and 10. Here, Appellants' specification describes the non-limiting example of the adjusting of the zone protective function as follows:

If the configuration of power distribution system 105 were changed by closing tie CB 1070 (as shown in FIG. 10), then the tie CB would be a power sink of zone 1095. Again applying equation one to zone 1095 where tie CB 1070 is now closed, provides a bus differential function defined by equation three:

$$i_r = i_{\text{main-1}} - (i_{\text{feeder-1}} + i_{\text{feeder-2}} + i_{\text{tie}})$$

where  $i_{\text{main-1}}$  is the current at main-1 CB 1015,  $i_{\text{feeder-1}}$  is the current at feeder-1 CB 1020,  $i_{\text{feeder-2}}$  is the current at feeder-2 CB 1025 and  $i_{\text{tie}}$  is the current at tie CB 1070. CCPU 28 has all of the information for the device status available to it at the same time as all of the information for the current. Based upon the state or topology of power distribution system 105, and, in particular, the state or topology within zone 1095 with tie CB 1070 now closed, CCPU can apply equation three for determining the residual current within the zone. The ability for CCPU 28 to have the state information at the same time as the current, allows CCPU 28 to apply the correct

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algorithm for the bus differential protection function, and avoids application of the erroneous equation two causing a false trip within zone 1095. The protection function can continue effectively uninterrupted to provide the same protection to the new state, topology or configuration within zone 1095. See paragraph [0094].

Advantageously, the claimed zone protective function itself is adjusted based at least in part upon the topology or changes to the topology. Such adjustment prevents use of erroneous algorithms resulting from the different configuration of the circuit.

Independent claims 1 and 14 are each directed to a method of protecting a circuit (105).

The method of claim 1 includes: monitoring a zone of protection (595, 895, 896, 995, 1095, 1195) of the circuit to determine a first topology; adjusting a zone protective function for said zone of protection based at least in part upon changes to said first topology, said zone protective function detecting a fault in said zone of protection; and performing said zone protective function on said zone of protection to detect said fault. See Figures 5-11 and paragraphs [0089] to [0094].

Similarly, the method of claim 14 includes: monitoring the circuit (105) to determine a first topology; defining a zone of protection (595, 895, 896, 995, 1095, 1195) for at least a portion of the circuit based at least in part upon changes to said first topology; performing a zone protective function on said zone of protection to detect a fault; monitoring a second topology for said zone of protection; and adjusting said zone protective function based at least in part upon changes to said second topology. See Figures 5-11 and paragraphs [0089] to [0094].

Independent claim 29 is directed to a protection system (26) for coupling to a circuit (105) having a circuit breaker (14, 415, 420, 425, 700, 715, 720, 725, 1015, 1016, 1020, 1021, 1025, 1026, 1070). The system includes: a control processing unit (28) being communicatively coupleable to the circuit so that said control processing unit can monitor a topology of the circuit, said control processing unit defining a zone of

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protection (595, 895, 896, 995, 1095, 1195) for at least a portion of the circuit based at least in part upon said topology, and said control processing unit redefining said zone of protection based at least in part upon changes to said topology, wherein said control processing unit adjusts a zone protective function for said zone of protection based at least in part upon changes to said topology, said zone protective function detecting a fault in said zone of protection. **See Figures 5-11 and paragraphs [0089] to [0094].**

Independent claim 39 is directed to a protection system (26) for coupling to a circuit (105) having a zone of protection (595, 895, 896, 995, 1095, 1195) and a circuit breaker (14, 415, 420, 425, 700, 715, 720, 725, 1015, 1016, 1020, 1021, 1025, 1026, 1070). The system includes: a control processing unit (28) being communicatively coupleable to the circuit so that said control processing unit can monitor a topology of the zone of protection, said control processing unit adjusting a zone protective function for the zone of protection based at least in part upon said topology, and said control processing unit performing said zone protective function to detect a fault in the zone of protection. **See Figures 5-11 and paragraphs [0089] to [0094].**

Independent claims 51 and 62 are each directed to a power distribution system (10).

The system of claim 51 includes: a circuit (105) and a control processing unit (28) communicatively coupled to said circuit, wherein said control processing unit determines a topology of said circuit, wherein said control processing unit defines a zone of protection (595, 895, 896, 995, 1095, 1195) for at least a portion of said circuit based at least in part upon said topology, wherein said control processing unit redefines said zone of protection based at least in part upon changes to said topology, and wherein said control processing unit adjusts a zone protective function for said zone of protection based at least in part upon changes to said topology, said zone protective function detecting a fault in said zone of protection. **See Figures 5-11 and paragraphs [0089] to [0094].**

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Similarly, the system of claim 62 includes: a circuit (105) having a zone of protection (595, 895, 896, 995, 1095, 1195) and a control processing unit (28) being communicatively coupled to said circuit, wherein said control processing unit monitors a topology of said zone of protection, wherein said control processing unit adjusts a zone protective function for said zone of protection based at least in part upon said topology, and wherein said control processing unit performs said zone protective function to detect a fault in said zone of protection. **See Figures 5-11 and paragraphs [0089] to [0094].**

**Summary**

In view of the above supplement to the Appeal Brief, Appellants respectfully request that the Board of Appeals reverse the final rejection of claims 1-14, 16, and 19-74 and pass the present application to issuance.

Respectfully submitted,

August 30, 2007  
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